PLANTAE COLOMBIANAE, VIII.

De distributione *Herraniae purpureae* notae.

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Herrania purpurea (Pittier) R. E. Schultes in Caldasia 9 (1944) 333.

Known from numerous excellent collections made in Costa Rica and Panamá, *Herrania purpurea* has always been considered to be purely Central American in its distribution. Recently, during a short trip to the Golfo de Urabá in northwestern Colombia (1), I had the good fortune of finding this species in abundance in the region around Turbo, Antioquia. Two collections of this wild cacao, known locally as *cacahuillo,* were made.

It is interesting to point out that *Herrania purpurea* in this region (floristically related to parts of Panamá) corresponds in all details with the Central American collections which I have had ocasion to examine. A study of the fruits of the collections cited below has made it advisable to publish the following extended description of the capsule. A number of the best specific characters in this genus are to be found in the morphology of the fruit, but, until recently, these characters have been of limited utility due primarly to the fact that, in many species, the capsule had never been collected.

In cross section, the capsule of *Herrania purpurea* approaches most closely that of *H. umbratica* R. E. Schultes, a species known only from the western slope of the Cordillera Oriental in Santander, Colombia. This similarity is interesting even though other characters indicate that these two species are not closely allied. In both species, the primary and secondary ribs are bluntly rounded and subequal, whereas the most common condition in the genus is the presence of sharp, cultriform ribs which are very strongly unequal. For purposes of comparison of the various types of capsules of *Herrania,* reference is made to the drawing published below and to the similar drawings in *Caldasia* 6 (1943) 25, 26 and in *Caldasia* 8 (1943) 263.

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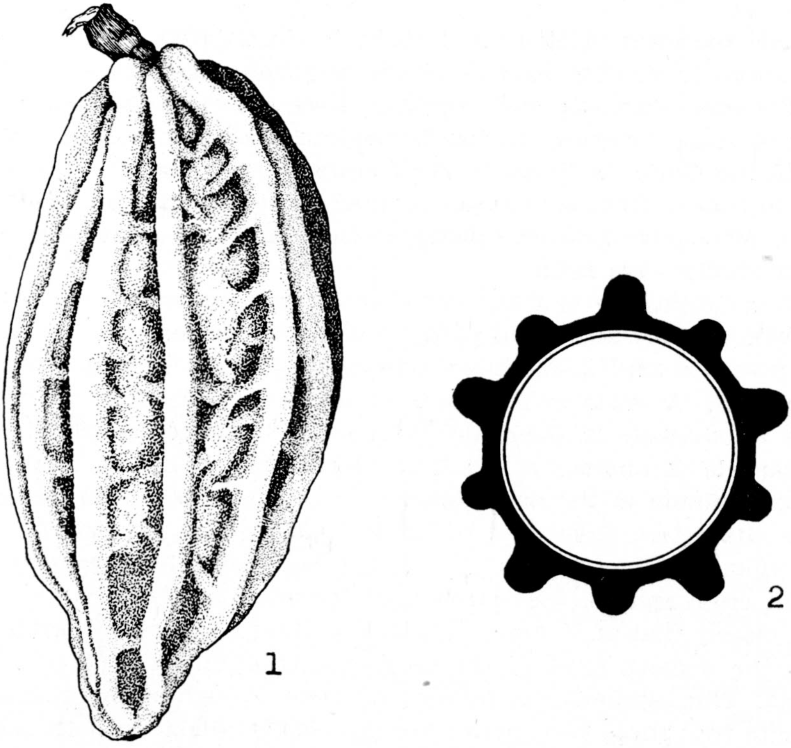
(1) As associate Agronomist, Rubber Plant Investigations, Bureau of Plant Industry, United States Department of Agriculture.

Fructus non numerosi, ovoideo-elliptici, saepe irregulariter contorti, usque ad 9 cm. longi, 5 cm. in diametro, apice rotundo-obtusi, prope apicem leviter constricti, basi vix indentati, cum pedunculo robusto et ex comparatione longo, decem-costati, cum costis primariis et secundariis subaequalibus, hebeto-rotundatis, 5 et 4 mm. altis densissime cum pilis stellato-urticantibus armatis, inter costas valde striato-fibrosi atque cum pilis urticantibus armati; pericarpio cras-



Herrania purpurea (Pittier) R. E. Schultes.
1.—Fruit, natural size.
2.—Diagram of fruit in cross section, natural size.
(Drawn by Inés de Zulueta)

sulento-coriaceo vel sublignoso, maturitate flavo; semina viginti-quinque, obtuse rhomboidea depressa, circiter 1 cm. longa, 1.3 cm. lata et usque ad 0.6 cm. crassa.

COLOMBIA: Gulf of Urabá, region around Turbo, Antioquia. Road between Turbo and Rio Grande, near Rio Grande. "In *Heliconia* thickets. Fruit with stinging hairs along ribs. Flowers said to be red. Treelet 12 feet tall. Bark light yellow-brown." January 31, 1944, *R. E. Schultes 5754.*

Gulf of Urabá, region around Turbo, Rio Micurí, Antioquia. "Very abundant in rich, wet forests with *Heliconia* undercover. Flowers deep red, scarlet sepals. Ripe fruit bright yellow with stinging hairs on the ribs. Flowers in fascicles up to five scattered all along the trunk, even in leaf axils. Leaves very minutely pilose. Bark sandy brown. Treelet 12 ft. tall, basal diameter 2½ inches". February 2, 1944, *R. E. Schultes 5755.*

The closest ally of *Herrania purpurea* is *H. albiflora* Goudot of the Central Magdalena Valley of Colombia. (See Caldasia 9 (1944) 328). It is obvious that the ranges of these two species are somewhat contiguous.

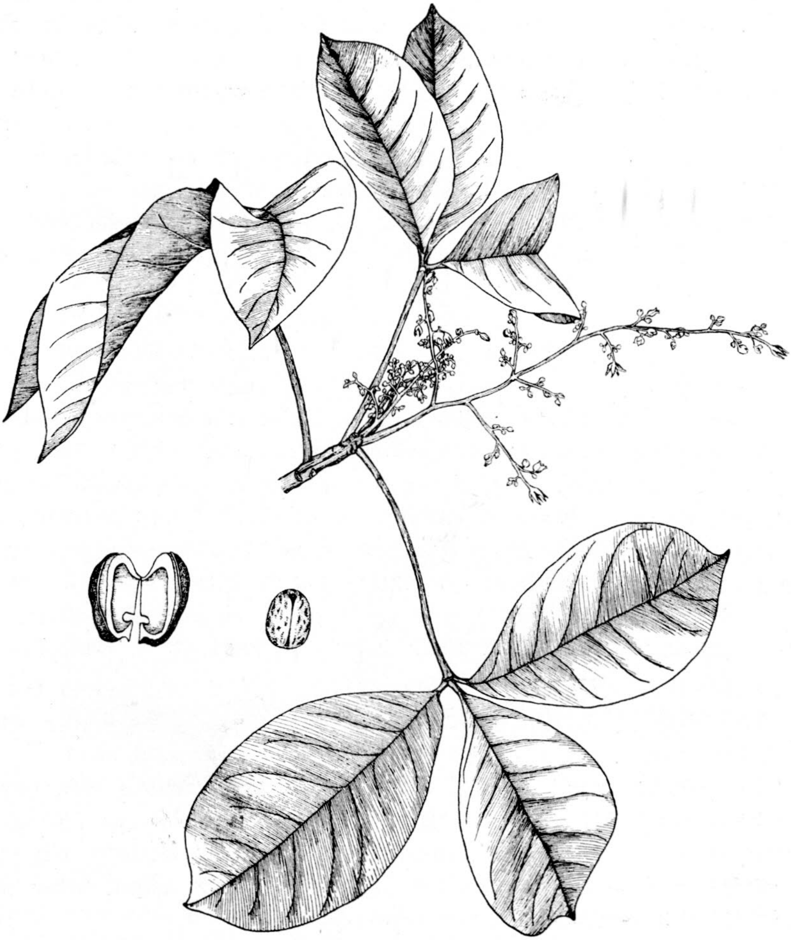
The only other collection from the northwesternmost part of Colombia which I have seen is that made by Metcalf and Cuatrecasas (*Univ. Cal. 3rd Bot. Gard. Exped. Andes No. 30173,* 2/25/42) north of Dabeiba on the road to Turbo. This collection appears to represent an exceptionally large form of *Herrania pulcherrima* Goudot.

Nova varietas speciei *Hevea viridis.*

Hevea viridis Huber var. **toxicodendroides** R. E. Schultes & E. L. Vinton, var. nov.

Frutex vel arbuscula in tofi montibus crescens, usque ad quindecim pedes (sed saepissime octo ad duodecim) altus, saepe contorto cum trunco usque ad 9 cm. (sed saepius minore) in diametro cum cortice maxima pro parte tenuissimo, ex comparatione plano vel laevigato, maculoso, colore cinereo-fusco, copiose lactescente densc cum lacte tenace alboque, obtecto. Ramuli novelli cum cortice rufo tenereque obtecti. Folia perspicue luxuriosa, longe petiolata, 10 (rarenter usque ad 21) cm. longa cum petiolis. Petioli robusti, glabri, flavo-fusci, rigidiores quam in genere vulgo, 3.5 (rarenter 8) cm. longi, plus minusve 1 mm. in diametro. Foliola maxime valdissime reclinata, secundum costam mediam angulatim (90º) plicata, firmissime coriacea, oblongo-elliptica, apice breviter cuspidato-acuminata (acumine obtuse rotundato, usualiter plus minusve 0.5 cm. longo), basi rotundata et cum petiolulis robustis 3 - 8 cm. longis affixa, integra et rigide submarginata, utrinque glabra, saepius (et in typo) 6 - 8 cm. longa, 3.5 - 5 cm. lata in statu adulta, frequenter 10 - 15 cm. longa, 6 - 8 cm. lata; supra atroviridia, nitidissima, venis lateralibus aliquid prominentibus, rigidis, plus minusve decem ad tredecim; infra pallide viridia, nitida, venis flavo-viridibus prominenter elevatis, glabris. Inflorescentiae terminales, paniculiformes, foliis subaequilongae vel breviores, usque ad 10 cm. longae, angustiusculae; rhachis primaria viridia pallida, parce puberula; rhachides secundariae densiore puberulae vel tomentellae. Floris alabastri masculini ovoideo-acuminati, 2 - 2.5 mm. longi, 1.5 mm. in diametro. Flores minus quam in genere vulgo, numerosi, inodorati,, utriusque sexus minute sed densissime albo-tomentosi, cinereo-conchylio vel cinereo-ferruginei, 4 mm. longi et 3 mm. in diametro. Calyx crassus, aliquid gamosepalus, profunde quinquefidus; calycis laciniae elongatae, ellipticae (vel in floribus vivis false perspicue triangulares cum margine utroque axin versus involuto-inflexae), 2 mm. longae et 1 mm. latae, intus atque extus tomentosae cum pubescente alba. Antherae in columna centrali subsessiles, duodecim vel decim, irregulariter biverticellatae, flavae, circiter 0.3 mm. in diametro; columna carnosa, subcylindrica vel leviter complanata, apice acuta, pubescentia, 2.5 mm. longa, 0.3 mm. in diametro. Disci glandulae quinque, basi connatae, compresae. subcarnosae, glabrae, semi-erectae, conspicue linguiformes, saepius 0.3 x 0.3 x 0.5 mm. Bracteae minutae, triangulari-subulatae, apice acutae, 1.5 mm. longae, 1 mm. latae, extus tomentellae, intus glabrae. Fructus parvi, in maturitate atrovirides, rufescentes, longe pedunculati, conspicue trisulcati, in diametro 2 x 2.5 cm. (rarenter 2.5 x 2.5 cm.), cum capsularum endocarpio lignoso, 2 mm. crasso, et pericarpio tenuissimo, subcarneo-coriacea; capsulae crepitantes, violente dirumpentes, valvas seminaque longe (usque ad 15 pedes) jactantes. Semina parva, ellipsoideo-ovoidea, spadica, rufofusca vel subaurea, maculosa, cum maculis majoribus atrofulvis, minoribus atrorufis, saepius 13 x 10 x 9 mm. vel rarenter 15 x 12 x 11 mm.

COLOMBIA: VAUPÉS: Upper Apaporis Basin, Rio Macaya, Cerro Chiribiquete, alt. about 1200 feet above forest floor (2100 feet above sea-level). Sandstone formation. "Bushy shrub up to 12 feet tall with



Hevea viridis var. *toxicodendroides.*
Flowering branch, capsule and seed (½ nat. size)

(Drawn by Inés de Zulueta)

abundant sticky, white latex. Bark smooth in places, slightly rough in others, greyish. Fruits explosive, being cast 12 or 15 feet, dark green with reddish cast when ripe, long pedunculate. Flowers profuse, small, purplish brown or greyish rust-coloured towards the green. Leaflets very strongly reclinate and folded at right angles along the midrib; very glossy on both sides, dark green above, dark but slightly lighter beneath. South American leaf-disease present in small amounts. Growing on sterile sandstone ledge with roots in cracks." July 24, 1943, *R. E. Schultes 5633* (TYPE in Econ. Herb. Oakes Ames; DUPLICATE TYPE in Herb. Nac. Colomb.).

Same localitv: May 15-16, 1943, *R. E. Schultes 5446, 5449, 5450, 5451, 5454, 5458, 5460, 5463, 5472, 5477, 5478, 5485;* - January 18, 1944, *R. E. Schultes 5737.*

Other localities:

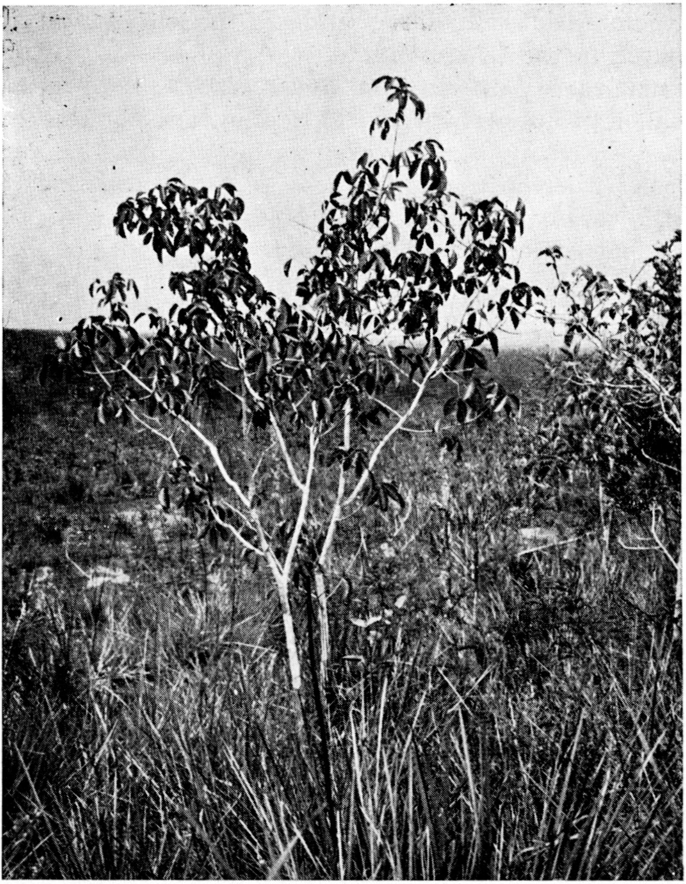
VAUPÉS: Upper Apaporis Basin, Rio Ajajú, Cerro Campana, on flat sandstone bench or shelf around base of mountain, alt. about 500-600 ft. above the forest floor (1500 ft. above sea-level), June 1-6, 1943, *R. E. Schultes 5554, 5555, 5556, 5571, 5572, 5574*; - Lower Vaupés Basin, headwaters of Caño Cuduyari, Cerro Yapóbodá, "Shrub or small tree 2-3 m.; flowers cream-white, 12/10/43, *Paul H. Allen 3052;* - Lower Vaupés Basin, Cerro Circasia near Mitú, on small sandy savanna at base of mountain, alt. about 200 m. above sea-level, "Small, slender treelet, 12 ft. tall; leaves strongly reclinate, folded along the midrib. Latex white. In thickets", March 7, 1944, *R. E. Schultes 5838.*

CAQUETÁ: Upper Apaporís Basin, Rio Ajajú, Cerro del Gigante, atl. about 600 ft. above forest floor (1500 ft. above sea-level); sandstone formation, June 12, 1943, *R. E. Schultes 5593* and *5594.*

The epithet refers to the striking similarity which this new variety bears in habit and leaf structure to the poison-ivy (*Rhus toxicodendron* L.). On the flat summit of Cerro Chiribiquete, where *Hevea viridis* var. *toxicodendroides* occurs as a low bush, often semiprostrate, this similarity is very apparent.

Hevea viridis var. *toxicodendroides,* naturally, occurs in varying densities of growth. The greatest density which I have observed at the type locality is between 200 and 300 individuals per hectare.

This shrubby *Hevea* is distributed by the explosion of its capsules. Measurements of a large number of individuals indicated that seeds are cast far as fifteen feet from the plant. The terrain is such that most seeds fall on flat, sterile sandstone and are immediately



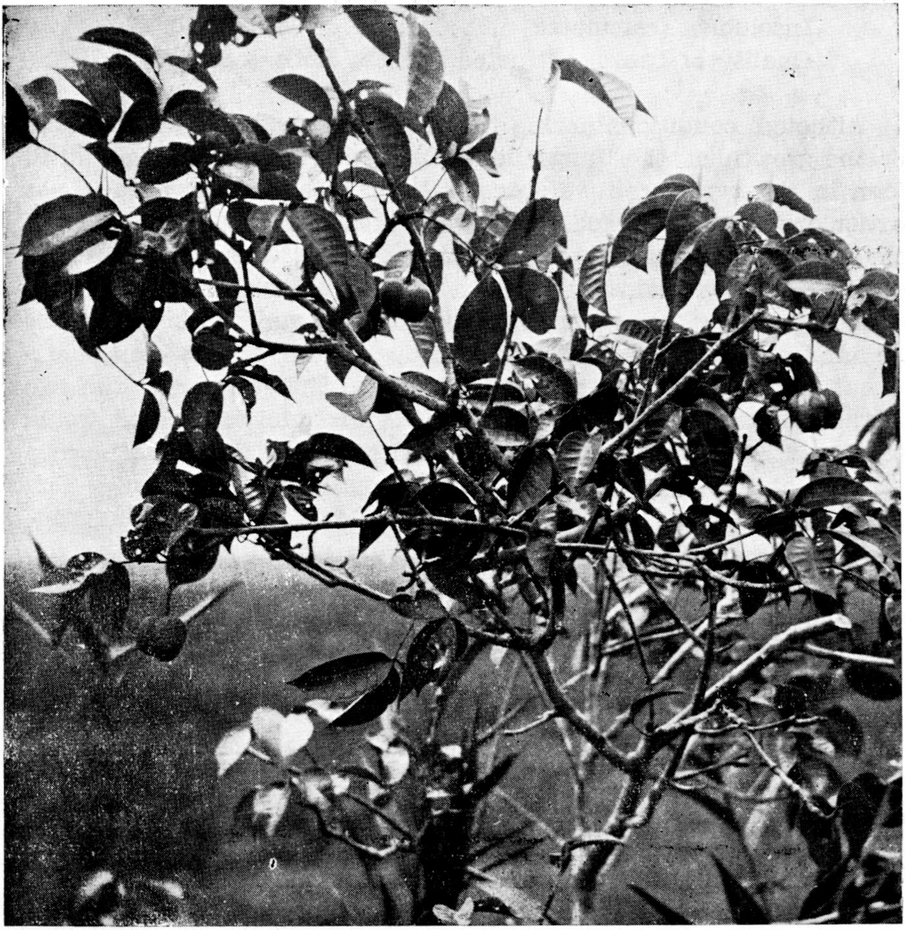
A typical bush of *Hevea viridis* var. *toxicodendroides* at the type locality. Cerro Chiribiquete.
Foto Schultes

eaten by animals. Some lodge in cracks and germinate rapidly. The seeding was well passed when I first visited Cerro Chiribiquete in May, 1943. When I returned in July, flowering was in full progress. In January, 1944, I found half-ripened fruits just taking on a cherry-red colour. It would seem, according to these observations, that the casting of seed takes place during late March. This is at variance with the flowering and seeding of the great majority of species of plants on Cerro Chiribiquete, for December seems to be the month when the flora of this mountain blossoms. In this connexion, it should be pointed out that *Hevea viridis* of the lowlands casts its seeds during March in the Lower Vaupés.

This new variety differs from *Hevea viridis* chiefly in being very much smaller in all parts. The leaf, leaflet, and fruiting characters of both are extremely similar, even as to size, but the variety is a bushy treelet whereas the species is a very tall and stout tree. The seeds of the variety are usually very much smaller than those of *Hepea viridis,* but there is a very great range in the size of seeds in the species. I have never seen an individual of *Hevea viridis* var. *toxicodendroides* the latex of which was not pure white; but *H. viridis* in the Lower Vaupés tends to have a buff-coloured latex, with only an occasional tree yielding pure white milk.

It is difficult to avaluate the relationship between *Hevea viridis* var. *toxicodendroides* and *H. camporum* Ducke, a species of the open hills between the Manicoré and Marmellos Rivers, affluents of the Madeira, in Brazil. *Hevea camporum* is a shrubby species. In the size of its vegetative parts and fruit, there seems to be a rather close correlation between *Hevea camporum* and *H. viridis* var. *toxicodendroides*. Unfortunately, however, *Hevea camporum* is known only from very limited and incomplete material, and nothing is known of its flowers or inflorescence. The distribution of *Hevea camporum* has never been established since its is apparently known only from the type collection. Ducke has collected material of *Hevea* in many parts of the Upper Amazon - Río Negro sector of northwestern Brazil. In his monograph of the Brazilian species of the genus, he states that he failed to find *Hevea camporum* represented in this vast area which, incidentally, intervenes between the Vaupés and the Madeira River Basin. The type localities of *Hevea camporum* and *H. viridis* var. *toxicodendroides* are separated by 1500 kilometers, but we know from the few collections at present available that *H. viridis* var. *toxicodendroides* is rather widespread in the Comisaría del Vaupés, having been discovered on the far-separated hills of the Upper Apaporis Basin, on Cerro Circasia, and on Cerro Yapóbodá.

In October, 1943, the dried leaves and twigs of a complete plant of *Hevea viridis* var. *toxicodendroides* from the type locality were analysed for resin and rubber content by the Bureau of Plant Industry in Washington, D. C. With the permission of the Rubber Development Corporation, I am reproducing this analysis.



Hevea viridis var. *toxicodendroides* in fruit. Cerro Chiribiquete.

Foto Schultes

Analysis of Plant Specimen

	Leaves	*Stem*
Acetone extract (resin)	20.62	4.41
Benzol extract (rubber)	0.81	1.24
Insolubles (calculated)	78.57	94.35

Quality of benzol extracted rubber: Both very good.

Although conditions during the rainy season are very favourable for the growth of the fungal leaf-blight disease, *Dothidella Ulei* P. Henn in the type locality *Hevea viridis* var. *toxicodendroides* is not particulary heavily attacked. There are a great many individuals which exhibit apparent resistance to the disease, and, when the disease is present no serious damage seems to result. The thinck, tough, coriaceous and very glossy leaves of *Hevea viridis* var. *toxicodendroides* are admirably adapted to withstand drought, and, as has been pointed out in detail, this species is an highly xerophytic plant. The two characteristics of resistance to *Dothidella Ulei* and to drought would seem to indicate that this variety would be a valuable element in a breeding project. Furthermore, it is so small and so strikingly different from other species of *Hevea* that, as Mr. Carl O. Grassl, agronomist of the Bureau of Plant Industry who visited the type locality in July, 1943, states, "... the utilization of this species in a breeding programme may result in the production of important hybrids... (with the) possibility of producing tetraploids as result of chromosome incompatibility".

It is with great pleasure that I describe *Hevea viridis* var. *toxicodendroides* jointly with my colleague in the exploration of the headwaters of the Apaporis River, Mr. EVERETT L. VINTON, Field Technician of the Rubber Development Corporation. I also have to thank Miss Inés de Zulueta, of the Instituto de Ciencias Naturales, Bogotá, for her very careful drawing of the new concept herein described.